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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,533	12/29/2003	Richard A. Mathies	UCALP020	5540
22434	7590	07/12/2007		
BEYER WEAVER LLP P.O. BOX 70250 OAKLAND, CA 94612-0250			EXAMINER BEISNER, WILLIAM H	
			ART UNIT 1744	PAPER NUMBER
			MAIL DATE 07/12/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/750,533

Applicant(s)

MATHIES ET AL.

Examiner

William H. Beisner

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 16-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 6/17/04 & 6/5/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, Claims 1-15, in the reply filed on 4/10/07 is acknowledged. The traversal is on the ground(s) that since Group II is generic with respect to claim 1 of Group II and the claims of Group III are related to the claims of Group I, the restriction of these groups of claims is improper and should be withdrawn. This is not found persuasive because the Groups of claims are considered to be distinct for the reasons already of record. Claim 16 cannot be considered generic to claim 1 because claim 1 requires that the membrane is positioned between a first surface and a second surface requiring fluid channels while claim 16 does not require the combination of structural elements. With respect to claim 1 and claim 18; while the claims may be related, they are considered distinct for the reasons discussed in the previous restriction requirement.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 16-44 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 4/10/07.

### ***Information Disclosure Statement***

3. The information disclosure statements filed 6/17/04 and 6/5/06 have been considered and made of record.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2 and 4-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Lipshutz et al.(US 5,856,174).

With respect to claim 1, the reference of Lipshutz et al. discloses a microfluidic structure (See Figure 2B) comprising: a first surface (116) including a pneumatic channel (126); a second surface (106) including a fluidic channel (110, 108); and an elastomer membrane (114) located between the first and second surfaces such that the application of a pressure or a vacuum to the pneumatic channel causes the membrane to deflect to modulate a flow of a fluid in the fluidic channel.

With respect to claim 2, the surfaces can be made of polymer or glass (See column 16, lines 19-34).

With respect to claim 4, the device includes additional surfaces (102) and membranes (120).

With respect to claim 5, the additional surfaces (102) have channels for fluid flow.

With respect to claim 6, the second surface includes a plurality of vias (108) (See Figures 2B and 5B).

With respect to claims 7-14, the device can includes a plurality of chambers for pumping and/or mixing a sample fluid within the system (See column 20, line 37, to column 21, line 18).

With respect to claim 15, the membrane (114) normally prevents the flow of fluid (See Figure 2B and related text).

6. Claims 1, 2, 4-6 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Moles (US 6,073,482).

With respect to claim 1, the reference of Moles discloses a microfluidic structure (See Figure 1B) comprising: a first surface (10) including a pneumatic channel (12); a second surface (6) including a fluidic channel (14); and an elastomer membrane (22) located between the first and second surfaces such that the application of a pressure or a vacuum to the pneumatic channel causes the membrane to deflect to modulate a flow of a fluid in the fluidic channel.

With respect to claim 2, the surfaces can be made of polymers (See column 3, lines 57-59, and column 4, lines 23-28):

With respect to claim 4, the device includes additional surfaces and membranes (See Figure 4).

With respect to claim 5, the additional surfaces have channels for fluid flow (See Figure 4).

With respect to claim 6, the second surface includes a plurality of vias (24, 26) (See Figures 1B).

With respect to claim 15, the membrane (22) normally prevents the flow of fluid (See Figure 1B and related text).

7. Claims 1-15 are rejected under 35 U.S.C. 102(a) as being anticipated by Grover et al. (Micro Total Analysis Systems 2002).

With respect to claim 1, the reference of Grover et al. discloses a microfluidic structure (See Figure 1) comprising: a first surface (Glass manifold wafer) including a pneumatic channel; a second surface (Glass fluidic wafer) including a fluidic channel; and an elastomer membrane (PDMS membrane) located between the first and second surfaces such that the application of a pressure or a vacuum to the pneumatic channel causes the membrane to deflect to modulate a flow of a fluid in the fluidic channel.

With respect to claim 2, the surfaces are made of glass (See Figure 1).

With respect to claim 3, the membrane is inherently gas permeable since the instant specification discloses that PDMS is a gas permeable material.

With respect to claim 4, the device includes additional surfaces and membranes (See Figure 2).

With respect to claim 5, the additional surfaces have channels for fluid flow (See Figure 2).

With respect to claim 6, the second surface includes a plurality of vias (Via wafer) (See Figures 1).

With respect to claims 7-14, the device can include a plurality of chambers for pumping and/or mixing a sample fluid within the system (See Figure 2).

With respect to claim 15, the membrane normally prevents the flow of fluid (See Figure 1).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lipshutz et al.(US 5,856,174).

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The reference of Lipshutz et al. has been discussed above.

Claim 3 differs by reciting that the membrane is gas permeable.

The reference of Lipshutz et al. discloses the use of a gas permeable membrane (120) for venting chamber (104).

In view of this teaching and in the absence of a showing of criticality and/or unexpected results, it would have been obvious to one of ordinary skill in the art to construct membrane (114) out of a gas permeable material for the known and expected result of providing an additional means for venting the reaction chamber (104).

### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Beisner whose telephone number is 571-272-1269. The examiner can normally be reached on Tues. to Fri. and alt. Mon. from 6:15am to 3:45pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys J. Corcoran can be reached on 571-272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William H. Beisner/  
Primary Examiner  
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WHB